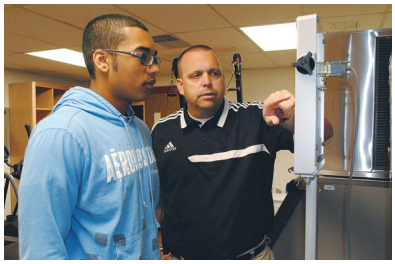

Student-athlete A.J. Coleman listens as Liberal High School Athletic Trainer Steve Zimmerman explains how the concussion testing equipment compiles data with the Biosway machine. L&T photos/Rachel Coleman

Concussion testing at LHS ‘top of the line’

By RACHEL COLEMAN

• Leader & Times

It hasn’t always been part of playing football. But then, seat belts weren’t always part of driving.

These days, concussion testing is a standard pre-season requirement for all contact sports at Liberal High School.

Liberal was the first school in the Western Athletic Conference to introduce the data collection method for athletes three years ago, and “one of the first this side of Kansas City,” said athletic trainer Steve Zimmerman, who’s been at LHS for nine years. He had looked into the test and hoped to introduce it for several years, but to do so, he needed a consulting doctor on board with the program. It wasn’t until sportsmedicine doctor Troy Taduran set up practice in Liberal that LHS introduced pre-season concussion testing.

Concussion testing is now required for all LHS athletes — male and female — who participate in contact sports: soccer, football, wrestling, basketball and cheerleading.

Before practice or competition, an athlete must complete a two-part test to establish what’s called a “baseline” set of information. By recording how a person’s brain responds under normal conditions, athletic trainers can then better assess the brain’s condition after an injury.

Students first complete computer tests that combine a series of visual prompts — tasks like identifying matching shapes after a short period of time has passed, and recognizing when an arrangement of objects or words has been changed. This test, called “IMPACT,” is not a measurement of academic skill or intellectual ability, Zimmerman said.

“People think it’s an IQ test. It’s not,” he said. “It measures verbal, visual and motor speed skills – reaction time. A lot of it comes down to split-second responses.” The value of this test is that it specifically measures how a person’s brain is processing information.

The second part of concussion testing focuses on the body's ability to balance, also controlled by the brain. Using the "Biosway" machine, which looks a bit like a high-tech, computerized weighing scale, Zimmerman is able to measure how effectively an athlete's brain is able to control his or her balance and stability. The machine senses subtle changes as the subject stands with eyes closed and eyes open.

Taduran describes the Biosway as "an amazing piece of equipment. It gives us precise information you can't get any other way."

Data collected from both tests is charted so that the athletic-training team can evaluate changes post-injury.

While the process makes a little bit more work on the front end of the season, "it makes recovery after an injury a lot easier," Zimmerman said. "My job is preventing injuries, but when they do occur, my focus becomes recovery."

Arriving at that point of total recovery is more straightforward with visible injuries like broken bones. Even injuries to the knee, the ligaments and tendons or other internal sites can be viewed with X-rays, CAT scans or MRI tests. Concussions are different.

"It is an invisible thing," Zimmerman said, "and every concussion is different."

While many people assume a concussion has occurred only if a person loses consciousness, that's not the case. A concussion is simply a blow to the head, or an event that causes the head to hit against something else, causing the brain to be jostled inside the skull. It's similar to Shaken Baby Syndrome, and it can hurt the brain in a fashion akin to bruising.

When an athlete in competition takes a blow to the head, trainers conduct an immediate evaluation on site. This focuses on clearly identifiable damage, such as slurred speech, unfocused or wandering eyes that cannot follow objects, numbness, pain and memory loss. To some extent, doctors and trainers must take an athlete's word about whether the concussion is serious or not.

“You’re depending on that kid to tell you, ‘I don’t feel well,’ and a lot of times, they don’t even realize they are not functioning at 100 percent,” Zimmerman said. “There’s some of ‘em that are such hard workers, so invested in the game, they really don’t register any difference.” Between the sometimes conflicting desires — to help injured fellow athletes and to win the game — it’s still a guessing game. In general, Zimmerman said, teammates usually look out for fellow players, and say, “He’s not himself.”

Such injuries may require a trip to the hospital for image testing.

“You’re always watching,” said Taduran. “We do neurological tests on the spot, and if there’s anything fishy, anything that’s off, I send them for a CAT scan.” Though imaging can detect bleeding in the brain, an absence of such damage is not a clear sign that the athlete is ready to get back in the game.

That’s where the pre-season concussion tests prove their value. Since the introduction of the IMPACT and Biosway tests, Zimmerman said he’s been amazed by what he sees when a post-concussion athlete sits down to retake the computer test and steps onto the Biosway machine.

“You can have a kid walking around here, talking like they’re fine, acting totally normal, and before [we had this test], I would have let them go back out there,” he said. “Now, I can look at their retest results and see they’re way off from where they were before the concussion. That means the brain needs time to recover.”

Taduran, who trained and tested with the IMPACT system with college athletes in Florida, said it’s critical to allow recovery time after concussions.

“In recent years, concussions have become a big vogue issue, but there’s a reason for that,” he said. “We’re just now realizing how badly athletes can be hurt by concussions, how much damage is done to the brain.” Though recent articles in Sports Illustrated magazine and elsewhere have focused on long-term results experienced by football players, Taduran is more concerned about the short-term dangers.

“There’s something called Second Impact Syndrome, which occurs when a person who’s sustained one concussion gets hit again before the brain has time to recover,” Taduran said. “When you have that swelling from another impact, the person can die, or be permanently disabled. In the past, all we had to rely on was asking the athlete, ‘Hey, how are you feeling?’ And they’d say, ‘fine,’ you’d tell them, ‘You’re good to go.’”

Concussion testing allows Zimmerman and the team’s physician, Dr. Troy Taduran, to give the OK with confidence. When the data doesn’t support that, they order the athletes to go through the testing and recovery process.

“We’ve gotten a lot of kickback for this, from parents and athletes who are eager to play, and especially from the old guard, former athletes who didn’t have this kind of testing and remember having to shake it off and get back out there,” Taduran said. “They think maybe the athletes now are being babied.”

Not so, said Taduran.

“We’ve got this six-step process to evaluate them and make sure they’re ready. It’s a lot of work for them and for the trainers,” he said. “I have kids checking in with Steve every single day until they’re back to normal: no headaches, no balance problems, no lags in mental response time.”

Zimmerman said the tests help him know with certainty when it’s safe for a player to return.

“This takes the subjectivity out of the process,” he said. “I can see how the kid’s brain is doing.”

The LHS athletic department has tracked more concussions in the past three years, but Zimmerman sees that as a good thing. Injured athletes who would have otherwise fallen through the cracks now receive treatment.

“We’re more cognizant of the problem. Kids are more willing to admit what’s going on, without feeling they’ll be perceived as weak,” Zimmerman said.

“I don’t think people know how great the athletes in Liberal have it,” Taduran said. “Our program is as good as any around.”

Ultimately, however, it’s the athletes, not the program, that motivate both men.

“We’re out there for the athletes,” Taduran said. “The last thing we want is a catastrophic incident. We want to see them recover and play.”

Zimmerman agreed.

“I love this job, and I love it because of the kids,” he said. “When they sustain an injury and I see them go through the process of recovery and return to playing, that’s the part of my job I enjoy the most.”